Amendments to the Claims:

This listing of the claims will replace all prior versions, and listings of claims in the application.

1. (Currently Amended) A method for the endothelium-preserving treatment of ~~hollow organs~~**biological vessels, said method** comprising the step of contacting an isolated ~~hollow organ~~**biological vessel selected from the group consisting of blood vessels and lymphatic vessels** with an endothelium-protective perfusion solution, wherein the endothelium-protective perfusion solution comprises at least the following components:

(a) **a** physiological electrolyte solution;

(b) ~~a component selected from the group consisting of (i) at least about 1-10 vol-% homologous hemolysin-free serum or autologous serum, and (ii)~~ a homologous anti-coagulatory blood plasma preparation **prepared from blood plasma, wherein said preparation retains the** ~~comprising~~ human plasma proteins, anti-coagulatory-acting factors and immunoglobulins **of said blood plasma but is free from** ~~in which~~ the pro-coagulatory-acting factors, isoagglutinins, **lipoproteins** and **toxic lipids of said** ~~unstable components of the~~ blood plasma ~~have been removed~~; and

(c) a nutrient substrate;

wherein the treatment results in a preservation or repair of the endothelial tissue in the lumen of said ~~hollow **organ**~~**biological vessel**.

2. (Canceled)

3. (Canceled)

4. (Currently Amended) The method of claim ~~3~~ **1**, wherein the anti-coagulatory blood plasma preparation contains sodium ions, potassium ions, calcium ions, magnesium ions, chloride ions,

human serum proteins, albumin and immunoglobulins.

5. (Previously Presented) The method of claim 4, wherein the anti-coagulatory blood plasma preparation comprises the following composition: about 100-170 mM sodium ions, about 1-15 mM potassium ions, about 1-6 mM calcium ions, about 0.1-4 mM magnesium ions, about 50-200 mM chloride ions, human serum proteins with about 25-45 g/l albumin, about 3-15 g/l IgG, about 1-10 g/l IgA and about 0.2-3 g/l IgM immunoglobulins at a pH value of about 7.3 to about 7.8 and an osmolarity of about 200-350 mosmol/kg.

6. (Withdrawn) The method of claim 1, wherein said nutrient substrate in said endothelium-protective perfusion solution is L-glutamine.

7. (Withdrawn) The method of claim 6, wherein the concentration of L-glutamine in said endothelium-protective perfusion solution is about 0.5-10 mM.

8. (Withdrawn) The method of claim 6, wherein said physiological electrolyte solution is selected from the group consisting of about 2-10 mM glucose and/or and about 1-10 mM pyruvate.

9. (Withdrawn) The method of claim 6, wherein said physiological electrolyte solution is selected from the group consisting of about 0.1-0.6 U/ml heparin, about 50-100 μM of uric acid and about 50-100 μM of ascorbate.

10. (Withdrawn) The method of claim 6, wherein said physiological electrolyte solution comprises the following components: about 100-150 mM NaCl; about 1-15 mM KCl; about 0.1-4 mM $MgSO_4$; about 0.5-2 mM KH_2PO_4; about 24-48 mM histidin-Cl and about 1-3 mM $CaCl_2$.

11. (Canceled)

12. (Previously Presented) The method of claim 3, wherein said blood plasma preparation comprises the following components: about 100-170 sodium ions, about 1-15 mM potassium ions, about 1-6 mM calcium ions, about 0.1-4 mM magnesium ions, about 50-200 mM chloride ions, about 25-45 g/l albumin, about 3-15 g/l IgG, about 1-10 g/l IgA and about 0.2-3 g/l IgM immunoglobulins.

13. (Previously Presented) The method of claim 12, wherein said blood plasma preparation is treated with β-propiolactone and UV-radiation for virus inactivation.

14. (Withdrawn) The method of claim 1, wherein said perfusion solution contains one or more endothelium-promoting growth factors.

15. (Withdrawn) The method of claim 14, wherein said growth factor is selected from the group consisting of epidermal growth factor (EGF), fibroblast growth factor (FGF), vascular endothelial growth factor (VEGF) and stem cell factor (SCF).

16. (Withdrawn) The method of claim 1, wherein said perfusion solution contains flavonoids.

17. (Withdrawn) The method of claim 16, wherein the flavonoid is quercetin or trihydroxyethyl rutoside.

18. (Withdrawn) The method of claim 1, wherein said perfusion solution contains papaverin or adenosine.

19. (Withdrawn) The method of claim 1, wherein said perfusion solution contains cardioplegic concentrations of potassium of more than about 6 mM.

20. (Canceled)

21. (Canceled)

22. (Canceled)

23. (Canceled)

24. (Withdrawn) An endothelium-protective perfusion solution comprising: (a) physiological electrolyte solution (b) a component selected from the group consisting of (i) at least about 1-10 vol-% homologous hemolysin-free serum or autologous serum, and (ii) a homologous anti-coagulatory blood plasma preparation comprising human plasma proteins, anti-coagulatory-acting factors and immunoglobulins in which the pro-coagulatory-acting factors, isoagglutinins and unstable components of the blood plasma have been removed; and (c) about 0.5 to 10 mM L-glutamine.

25. (Withdrawn) The perfusion solution of claim 24, wherein said component (b) comprises said about 1-10 vol-% homologous hemolysin-free serum or autologous serum.

26. (Withdrawn) The perfusion solution of claim 24, wherein said component (b) comprises said homologous anti-coagulatory blood plasma preparation.

27. (Withdrawn) The perfusion solution of claim 26, wherein the anti-coagulatory blood plasma preparation contains sodium ions, potassium ions, calcium ions, magnesium ions, chloride ions, human serum proteins, albumin and immunoglobulins.

28. (Withdrawn) The perfusion solution of claim 27, wherein the anti-coagulatory blood plasma preparation comprises the following composition: about 100-170 mM sodium ions, about 1-15 mM potassium ions, about 1-6 mM calcium ions, about 0.1-4 mM magnesium ions, about 50-200 mM chloride ions, human serum proteins with about 25-45 g/l albumin, about 3-15 g/l IgG, about 1-10 g/l IgA and about 0.2-3 g/l IgM immunoglobulins at a pH value of about 7.3 to about 7.8 and an osmolarity of about 200-350 mosmol/kg.

29. (Withdrawn) The perfusion solution of claim 24, wherein the concentration of L-glutamine is about 2.5 mM.

30. (Withdrawn) The perfusion solution of claim 24, wherein the concentration of L-glutamine is about 5 mM.

31. (Withdrawn) The perfusion solution of claim 24, wherein the concentration of L-glutamine is about 7.5 mM.

32. (Withdrawn) The perfusion solution of claim 24, wherein said physiological electrolyte solution comprises the following components: about 100-150 mM NaCl; about 1-15 mM KCl; about 0.1-4 mM $MgSO_4$; about 0.5-2 mM KH_2PO_4; about 2448 mM histidin-Cl and about 1-3 mM $CaCl_2$.

33. (Withdrawn) The perfusion solution of claim 32, wherein said physiological electrolyte

solution contains about 2-10 mM glucose or about 1-10 mM pyruvate.

34. (Withdrawn) The perfusion solution of claim 24, wherein said physiological electrolyte solution is selected from the group consisting of about 0.1-0.6 U/ml heparin, 50-100 μM of uric acid and about 50-100 μM of ascorbate.

35. (Withdrawn) The perfusion solution of claim 24, wherein the pH value in said physiological electrolyte solution is about 7.4+/−about 0.04 under atmospheric condition.

36. (Withdrawn) The perfusion solution of claim 24, wherein said endothelium-protective perfusion solution further contains antibiotics.

37. (Withdrawn) The perfusion solution of claim 36, wherein said antibiotics are about 50-400 U/ml penicillin or about 0.1-0.4 mg/ml streptomycin.

38. (Canceled)

39. (Withdrawn) The perfusion solution of claim 26, wherein said blood plasma preparation comprises the following components: about 100-170 sodium ions, about 1-15 mM potassium ions, about 1-6 mM calcium ions, about 0.1-4 mM magnesium ions, about 50-200 mM chloride ions, about 25-45 g/l albumin, about 3-15 g/l IgG, about 1-10 g/l IgA and about 0.2-3 g/l IgM immunoglobulins.

40. (Withdrawn) The perfusion solution of claim 39, wherein said blood plasma preparation is treated with β-propiolactone and UV-radiation for virus inactivation.

41. (Withdrawn) The perfusion solution of claim 24, wherein said perfusion solution contains one or more endothelium-promoting growth factors.

42. (Withdrawn) The perfusion solution of claim 41, wherein said growth factor is selected from the group consisting of epidermal growth factor (EGF), fibroblast growth factor (FGF), vascular endothelial growth factor (VEGF) and stem cell factor (SCF).

43. (Withdrawn) The perfusion solution of claim 24, wherein said perfusion solution contains flavonoids.

44. (Withdrawn) The perfusion solution of claim 43, wherein the flavonoid is quercetin or trihydroxyethyl rutoside.

45. (Withdrawn) The perfusion solution of claim 24, wherein said perfusion solution contains papaverin or adenosine.

46. (Withdrawn) The perfusion solution of claim 24, wherein said perfusion solution contains cardioplegic concentrations of potassium of more than about 6 mM.

47. (Withdrawn) An apparatus for the endothelium-preserving treatment of isolated biological vessels comprising a chamber, an axially movable stamp, a cannula, a reservoir container, which contains an endothelium-preserving perfusion liquid and a sealing device, wherein the cannula is connected with the axially moveable stamp such that the cannula can be moved together with the stamp into the chamber, and wherein the sealing device can clasp one end of the vessel and the cannula is connected with the other end of the vessel such that the endothelium-protective perfusion solution can be selectively directed into the biological vessel from the reservoir

container, preferably under a pressure gradient.

48. (Withdrawn) The apparatus of claim 47, wherein said sealing device comprises sealing discs which are arranged in stacks in a knurled thumb screw.

49. (Withdrawn) The apparatus of claim 48, wherein the sealing discs have a diameter of about 1-10 mm and/or a thickness of about 0.3-3 mm.

50. (Withdrawn) The apparatus of claim 47, wherein said apparatus further contains a thermostat device for heating the perfusion liquid.

51. (Withdrawn) The apparatus of claim 47, wherein said endothelium-protective perfusion solution is as defined in claim 24.

Claims 52. to 58. (Canceled)